

Amendments to the Claims:

1. (currently amended) A non-abrasive polishing fluid for a chemical-mechanical polishing process performed using a fixed abrasive polishing pad, the polishing fluid comprising:

a ~~polyacrylic acid~~ surfactant ~~or salt thereof, the surfactant having a molecular weight between about 2000 and about 240,000~~ an aliphatic structure;

a buffer for maintaining said polishing fluid at a pH ranging between about 5 and about 14; and

a chelating agent,

wherein the polishing fluid is a solution that is free of abrasive particles.

2. (original) The polishing fluid according to claim 1, wherein said surfactant is included at a concentration ranging between about 0.01 vol.% and about 10 vol.%

3. (currently amended) The polishing fluid according to claim 1, wherein said surfactant includes one or more compounds selected from the group consisting of poly(acrylic acid) potassium salts, ~~and~~ poly(acrylic acid) ammonium salts, anionic fluorinated surfactants, neutral fluorinated surfactants, cationic fluorinated surfactants, amphoteric fluorinated surfactants, polyethylene glycol, lauric acid, stearic acid, alkali stearates, alkali laureates, oleic acid, and alkali oleate.

4. (original) The polishing fluid according to claim 1, wherein said chelating agent includes one or more compounds selected from the group consisting of oxalic acid, ethylenediaminetetraacetic acid tripotassium salt, and potassium oxalate.

5. (original) The polishing fluid according to claim 1, wherein said chelating agent is included at a concentration ranging between about 0.1 wt.% and about 20 wt.%.

6. (original) The polishing fluid according to claim 1, wherein said buffer maintains said polishing fluid at a pH of about 7.

7. (currently amended) A method for making a non-abrasive polishing fluid for use with a fixed abrasive polishing pad, the method comprising the step of:

combining a ~~polyacrylic acid surfactant or salt thereof, the surfactant having a molecular weight between about 2000 and about 240,000~~ an aliphatic structure, a chelating agent, and a solvent with a buffering agent for maintaining said polishing fluid at a pH ranging between about 5 and about 14 to form a solution that is free of abrasive particles.

8. (original) The method according to claim 7, wherein said surfactant is included at a concentration ranging between about 0.1 vol.% and about 10 vol.%

9. (currently amended) The method according to claim 7, wherein said surfactant includes one or more compounds selected from the group consisting of poly(acrylic acid) potassium salts, ~~and poly(acrylic acid) ammonium salts, anionic fluorinated surfactants, neutral fluorinated surfactants, cationic fluorinated surfactants, amphoteric fluorinated surfactants,~~ polyethylene glycol, lauric acid, stearic acid, alkali stearates, alkali laureates, oleic acid, and alkali oleate.

10. (original) The method according to claim 7, wherein said chelating agent includes one or more compounds selected from the group consisting of oxalic acid, ethylenediaminetetraacetic acid tripotassium salt, and potassium oxalate.

11. (original) The method according to claim 7, wherein said chelating agent is included at a concentration ranging between about 0.1 wt.% and about 20 wt.%.

12. (original) The method according to claim 7, wherein said buffering agent maintains said polishing fluid at a pH of about 7.

13. (currently amended) A method for polishing a workpiece surface using a chemical-mechanical polishing pad having a fixed abrasive polishing surface, comprising the steps of:

introducing a polishing fluid that is free of abrasive particles onto said fixed abrasive polishing surface, said polishing fluid comprising:

a polyacrylic acid surfactant ~~or salt thereof, the surfactant~~ having a molecular weight between about 2000 and about 240,000 an aliphatic structure,

a buffer for maintaining said polishing fluid at a pH ranging between about 5 and about 14, and

a chelating agent; and

polishing said workpiece surface using said fixed abrasive polishing surface and said polishing fluid that is free of abrasive particles.

14. (original) The method according to claim 13, wherein said surfactant is included at a concentration ranging between about 0.1 vol.% and about 10 vol.%

15. (currently amended) The method according to claim 13, wherein said surfactant includes one or more compounds selected from the group consisting of poly(acrylic acid) potassium salts, ~~and poly(acrylic acid) ammonium salts, anionic fluorinated surfactants, neutral fluorinated surfactants, cationic fluorinated surfactants, amphoteric fluorinated surfactants,~~ polyethylene glycol, lauric acid, stearic acid, alkali stearates, alkali laureates, oleic acid, and alkali oleate.

16. (original) The method according to claim 13, wherein said chelating agent includes one or more compounds selected from the group consisting of oxalic acid, ethylenediaminetetraacetic acid tripotassium salt, and potassium oxalate.

17. (original) The method according to claim 13, wherein said chelating agent is included at a concentration ranging between about 0.1 wt.% and about 20 wt.%.

18. (original) The method according to claim 13, wherein workpiece surface includes trenches having an oxide compound formed therein, and

said polishing step planarizes said workpiece surface, said fluid preventing removal of said oxide below said planarized workpiece surface.

19. (withdrawn) An apparatus for performing a chemical-mechanical polishing process on a workpiece surface, comprising:

a fixed abrasive chemical-mechanical polishing pad having a polishing surface;

a workpiece carrier for securing said workpiece surface against said polishing surface during said polishing process;

a polishing fluid container;

a polishing fluid disposed in said container, comprising:

a surfactant having an aliphatic structure,

buffer for maintaining said polishing fluid at a pH ranging between about 5 and about 14, and

a chelating agent; and

a polishing fluid supply channel, in fluid communication with said container, and adapted to supply said polishing fluid to said polishing surface.

20. (withdrawn) The apparatus according to claim 19, wherein said surfactant is included at a concentration ranging between about 0.01 vol.% and about 10 vol.%

21. (withdrawn) The apparatus according to claim 19, wherein said surfactant includes one or more compounds selected from the group consisting of poly(acrylic acid) potassium salts, poly(acrylic acid) ammonium salts, anionic fluorinated surfactants, neutral fluorinated surfactants, cationic fluorinated surfactants, amphoteric fluorinated surfactants, polyethylene glycol, lauric acid, stearic acid, alkali stearates, alkali laureates, oleic acid, and alkali oleate.

22. (withdrawn) The apparatus according to claim 19, wherein said chelating agent includes one or more compounds selected from the group consisting of oxalic acid, ethylenediaminetetraacetic acid tripotassium salt, and potassium oxalate.

23. (withdrawn) The apparatus according to claim 19, wherein said chelating agent is included at a concentration ranging between about 0.1 wt.% and about 20 wt.%.

24. (withdrawn) The apparatus according to claim 19, wherein said buffer maintains said polishing fluid at a pH of about 7.

25. (withdrawn) The apparatus according to claim 19, wherein said polishing pad comprises a substantially uniform mixture of a friable filler material, an abrasive, and a resinous binder, and is constructed to continually wear during polishing and thereby facilitate continuous exposure of the abrasive.